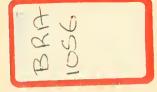
BRA 1056

WOLF AND COMPANY - ENGINEERS AND CONSTRUCTION COST CUIVALETAIN

BOSTON REDEVELOPMENT AUTHORITY



TRESTON PUBLIC LIBERTY

PARK PLAZA STUDY

Draft report of a study of the project's potential impacts on construction labor in metropolitan Boston.

June 20, 1975.

OBJECTIVE:

This phase of the study addresses itself to the range of potential impacts of the five development program alternatives on the construction labor force of metropolitan Boston and to the potential range possible within each development program alternative.

METHODOLOGY:

- o DEMAND: For each development program alternative, two models were established: one reflecting a labor intensive design (cast in place concrete/ masonry enclosure/ etc) and the other reflecting a design which was not labor intensive (steel frame/ metal decks/ metal and glass enclosure/ etc.) From these models, craft profiles were calculated and superimposed on schedules established elsewhere in TSA's report to produce estimates of total and annual demand for craft labor. Those calculations are displayed for each of seven major crafts and in an eighth category which represents all the other crafts, FIGURES 1-10 (YELLOW) MODIL-20 (DUE)
- o SUPPLY: Current trade populations and corresponding unemployment figures for Boston were established from direct interviews with personnel in 17 individual craft unions and with

Park Plaza W 853



WOLF AND COMPANY - ENGINEERS AND CONSTRUCTION COST CUIVO

representatives of contractor and labor councils in Boston. AGURE A

ASSUMPTIONS:

- o UNION LABOR: The scale of even the smallest alternative program suggests that the work will be done by union workers, and the calculations assume that it will.
- o STABILIZED LABOR POPULATION: The work force has remained essentially constant in the Boston area in recent years and this study assumes that constancy will continue.
- o LINEAR PROGRESS: This study accepts the approximation that the work will go forward in a more or less uniform way, and calculations of annual labor demand are made by dividing the estimated total demand by the estimated total construction time in years.
- o ALL DEVELOPMENT IS NEW: This study interpreted the programs to mean the all work identified as "new development" was new construction, and that renovation of existing buildings was not included. Construction labor demand for such renovation work would have to be added to the estimated demand identified in this report.

FINDINGS:

At the summary level, the study shows a current construction labor force in Boston of about 25,000, of which about 75% are currently employed. The development program alternatives were



found to represent somewhere between a little over 200 jobs and just under 500 jobs over periods ranging from about 2-1/2 years to about 9 years.

The labor consuming characteristics of the five basic space

types which comprise the alternatives are analyzed and are displayed in figures 1 through 10 inclusive (yellow.)

Those labor consumption data are superimposed on profiles

of the development programs themselves to show total annual

labor demands and to show annual labor demand by craft in

figures 11 through 20 inclusive (blue.) Significant excerpts from
the selection latter findings are, these:

- o The smallest devlopment program alternative, 2M, can be expected to require an average of about 218 construction workers over about 2-1/2 years if it is designed in the non-intensive mode and about 265 workers in the labor intensive mode. In the non-intensive approach the highest demand would be for ironworkers, whose population would average about 56 throughout the project (with much higher peaks) a figure which represents about 11% of the present ironworker unemployment in Boston.
- with about 92 men an average of about 92 men, roughly 50% of the currently unemployed caprenters in Boston.
- o Alternative 3M will require about 229 men in the low labor mode and about 290 men in the high labor mode. Ironworkers and carpenters, respectively, 62 and 104, on average. This alternative represents about 6.5 years at these average levels, where



alternative 2M was calculated for 2-1/2 years.

- o Alternative 4M, also 6.5 years, shows 363 jobs in the nonintensive mode, 456 in the intensive. Ironworkers 95, carpenters 161, average through the life of the project.
- o Alternative 5M demands more labor, of course, but has been stretched out to 9 years, so the average annual demand in the non-intensive approach drops back to 343 and in the intensive approach it drops to 432. Ironworkers 90, carpenters 151.
- o In the largest development program alternative, 6M, the average annual demand over 9 years was calculated to be about 392 men in the low intensity approach and about 495 in the labor intensive approach. In this scheme, the ironworkers in the non-intens&ve mode would average about 106 men, about 21% of their current unemployment in Boston, and the carpenters in the labor intensive design would average about 176 men over 9 years, a figure which actually represents all the men they currently have unemployed in the Boston area.

CONCLUSIONS:

O An annual demand averaging 500 workers represents only about

2% of the Boston construction force. Even allowing a peak of

2-1/2 times the average annual demand would only represent



about 5%.* Clearly, in the absence of a massive revival of demand from other sources (not now predicted) there is no threat of excessive demand of the labor resources of the area from any of the alternatives being considered here.

With an existing unemployment rate of about 25% the likelihood for that this project can represent

- o The significant potential for impact on the construction marketplace lies in the project's capacity to engage some of the city's idlectabor.
- o Until early 1974, a legitimate objective of urban designers was the aggressive reduction of labor-intensive constrction products and their displacement with materials from offsite remote origins. The energy crisis and its widespread ramifications changed all that, driving the cost of materials up, sharply reducing the volume of construction and effectively slowing the inflationary movement of construction wages. One result is a radical shift in priorities in urban design: high material costs, relatively stable wage levels, widespread unemployment and increased productivity among those who are working favor labor intensive urban design. THEXXEMENTIALEXXEMENTIALE

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There is evidence that an approximately 25% increase in construction jobs resulting from labor intensifying the design, as calculated in this study, can be achieved without increase in total construction cost.



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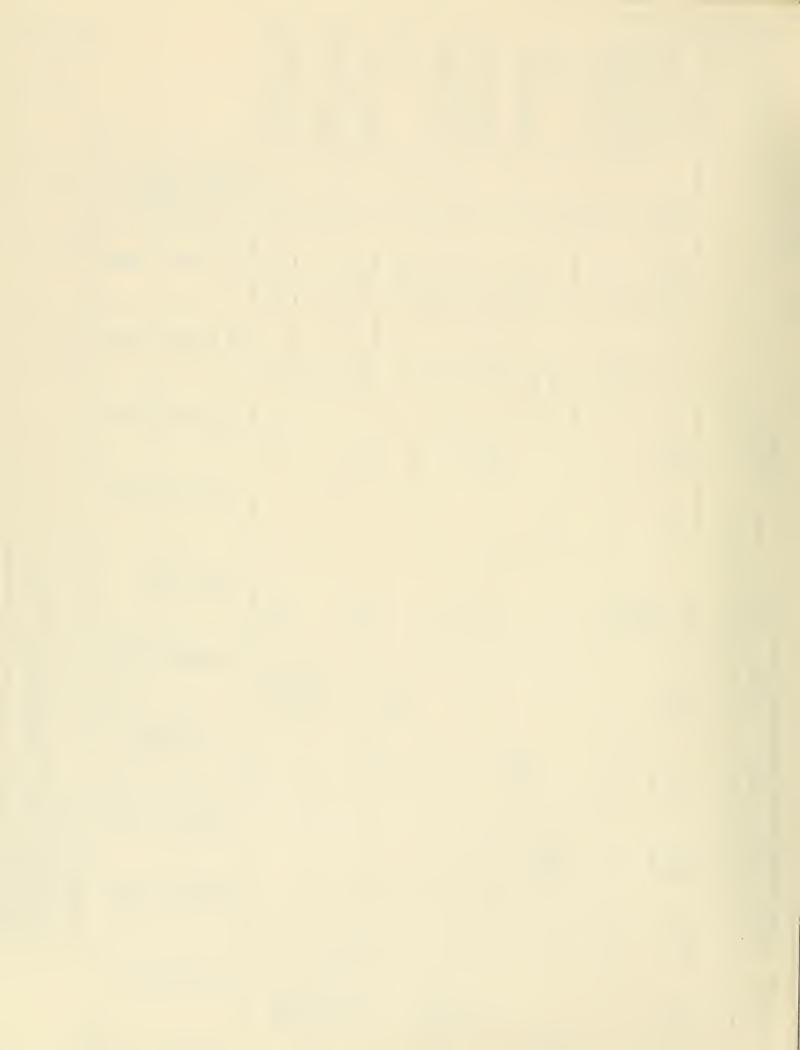
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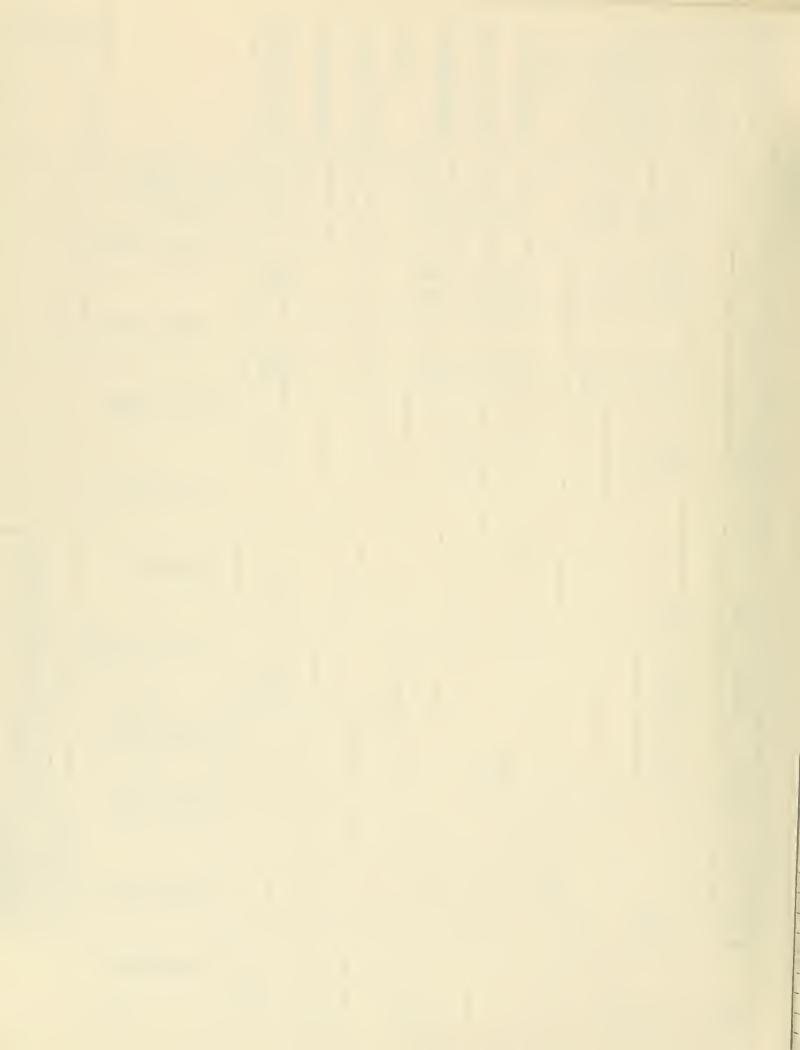


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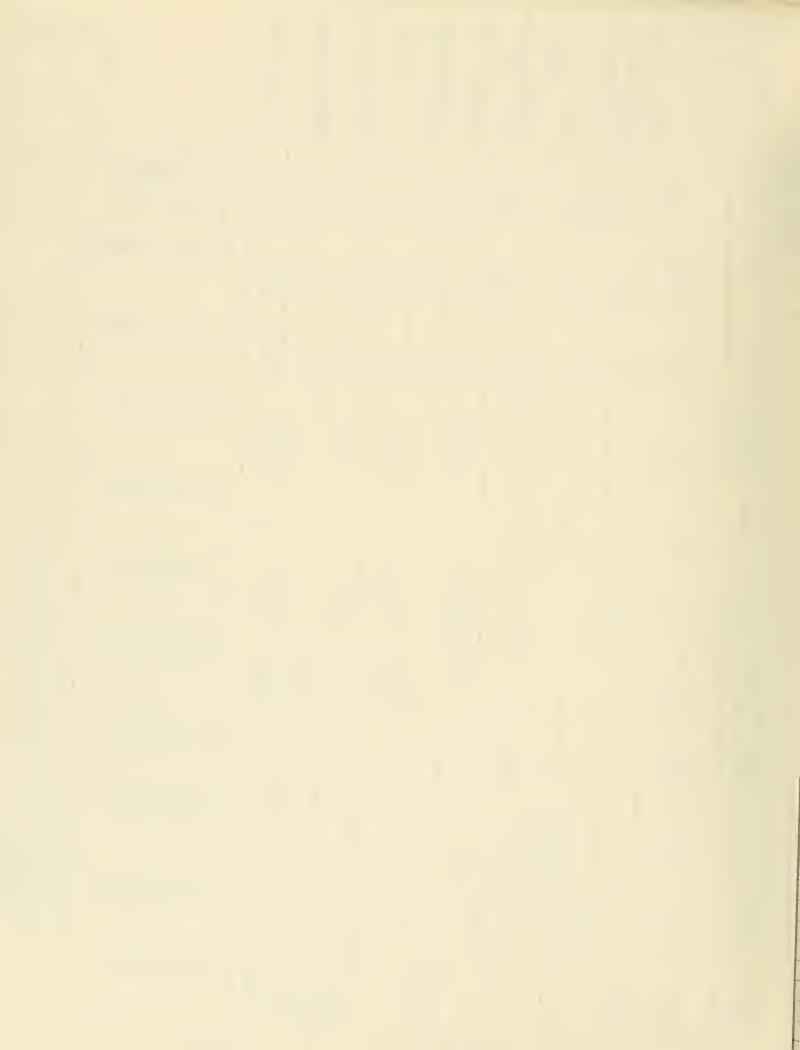


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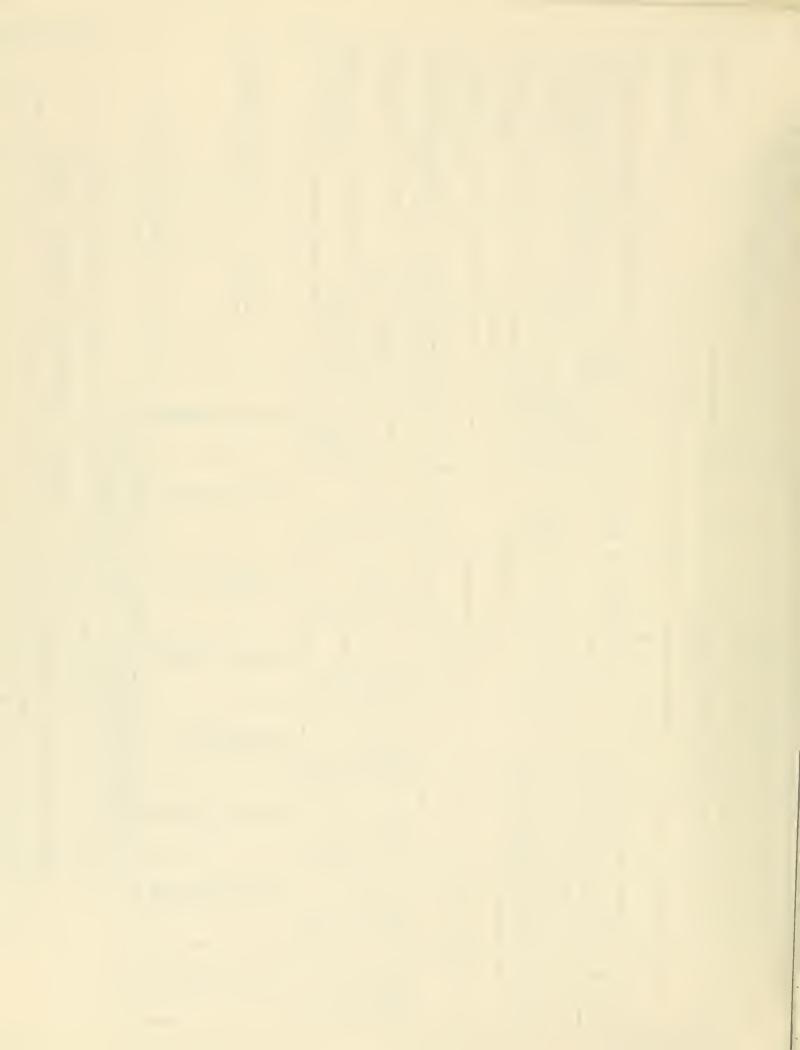
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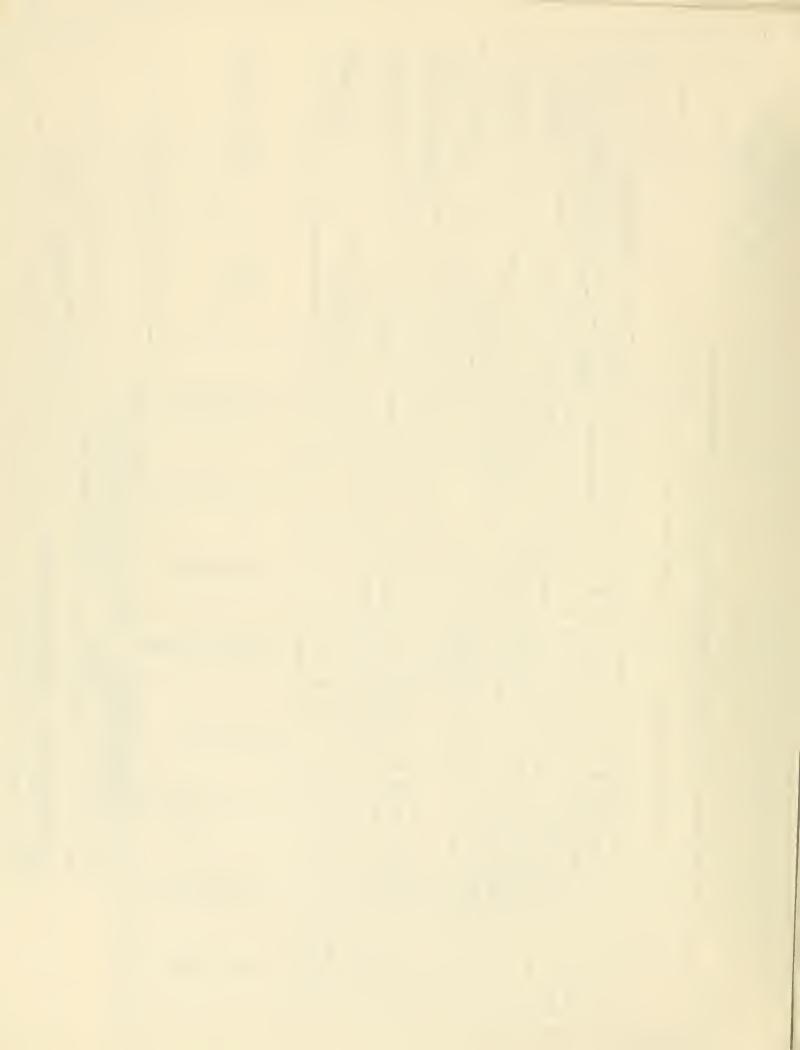
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	-		59.9	-119.8	1078.2	135.4	156:4	273.7	446.3	66.4	INDMONGER	N; HIR	Sallok
			.26.1	52.2	169.8	139.4	10.2	154.2	153.2	12.8	PUMBERS	TH LAK	OTE W
	· · · · · · · · · · · · · · · · · · ·		34.0	68.0	612.4	108.7		102.8	358.2	42.7	STMFTES SMV	SO!	SANS
			26.5	52.9	476.6	92.9	25.8	60.4	254.8	42.7	EVEGNUANS	500	
		-	53.0	105.9	952.7	127.8	93.8	196.6	4.59.7	74.8	AUDMIERS		

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									3 Men a yes	1.526 MX/H A95.3 MEN
				1 1						
		-				- :-	- 			:
6 min p 10	60,1	28,4	36.2	30.4	70.9	66.4	26.9	176.0	ANG NO. MEN BASED ON 2000 HASYR	ANG NO. MENE
	/20,3	56.8	72.4	60.9	-141.8	132.9	53.8	3521	ANNUAL MH BASED ON 2.0 YEARS	ANNUAL MH B,
	1082.3	511.4	651.9	5,47.7	12763	11957	484.1	3/69.2	5845500	toral
	127.8	92.9	108.6	139.4	135.4	169.7	6-2.2	402.6	581000	HORL -
	/37.3	37.8	_	14.9	228.8	76.7	- }	411.8	1144000	PARICING
	297.6	91.4	155.6	233.4	414.3	437.6	208.1	1036.7	1945000 103617	APARMEMS
	437.6	242.5	340.9	4249 145.9	-424.9	441.3	195.1	1106.9	1823500 1106.9	OFACE
	87.0	46.8	46.8	14.1	72.9	70,4-	18:17	211.2	352000	RETAIL
	AUDMERS	EVEGNUANS	STMFTES /SMW	PUMBERS	IROMONOER	LABORERS	BRICKAJERS	CARPENTERS	955	SPACE TYPE
-		SIC	302	W MC	1; KIC	NOUNO	MATERNATIVE:	MATTE		1 -
			Connes	W 770	Jours (MANK	STUDY: MAN	1	4 PARK DLAZA	GURE 19 20-75
					6		-			2



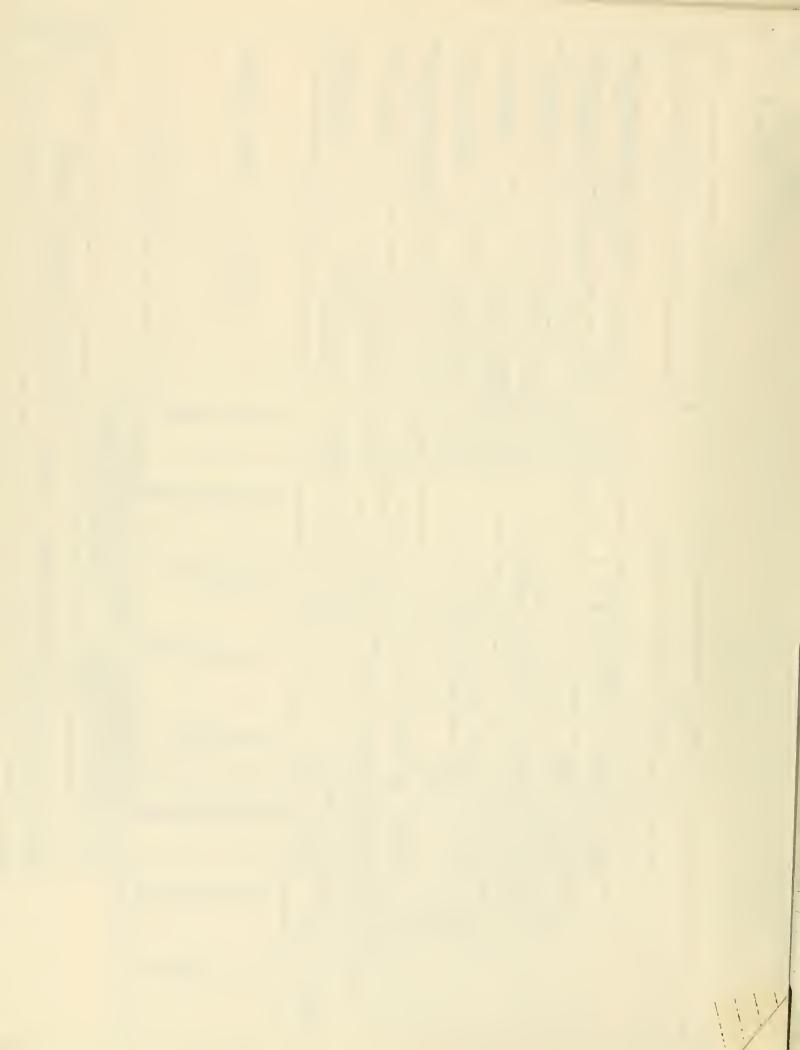
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	MOU
	CARDENTERS BRICHAJEES INDMONERS TIMPTES SAW ENERGY AND OTHERS
	RETAIL 47000 1/7.3 - 6,3 - 15.4 1.9 6.1 - 6,1 8.5
	OFACE 35/500/125 - 43,9-129,0 28,1-65,7 46,8 84,4
	RPROTINEMS 407500 127.6 - 50,9 135,7 48,9 32,6 19,2 54,2
	PARICING
	torne: 806000 2572 - 101,1 280,1 78,9 1022 72/147,1
	AMMAL WH BASED ON 12 YEARS 1020 - 40.4 11140 31.6 -41.8 -128.8 58.8
	ANG NO. MEN BASED ON 2000 118/10 51.5 - 20.7 56.0 15.8 20.9 124 29.4
•	29 MM BC
	1.24 208 MEN



260.3 210.6 42.1 119.0 161.8 19.8 19.2 19.2 19.2 19.2 19.2 19.2 19.2 19.2



								NEL L	472.4 MH M 12.76 3033
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	- :	:		- :		: : : : : : : : : : : : : : : : : : : :			· · · · · · · · · · · · · · · · · · ·
49.2	27.1	34.4	30,4	94,7	35.9		1916	ED ON 2000 HAS/YE	ANG NO. MEN BASED ON 2000 HESKIP
98.4	54,2	68,7	60.7	1894	71.7		183.3	DON 6:5 YEARS	ANNUAL MH BASED ON 6:5 YEARS 183.3
639.8	35236398	446,7	3948	1231.0	466.2		1/91.6	37265001191.6	+DTAL
119.4	99.0	115.7	148.4-11	2/46	11/8.8		2845	618500 2845	HOPEL I-I-I
56,6	20,1		7.9	141.9	30,5		97.4	609000	PARKING
156,3	55,2	94.0	141.0	39/,3	126,9		367.8	1175000	APARAMENTS
1292	145.2	204,2	87.4	400,8	136.5		349,4	1092000	OFFICE
45,4	32.8	8.78	10,1	1.18	3,3,5		3.26	252000	RETAIL
AUDINERS	EVEGNUANS	STMFTES /SMW	PUMBERS	INOMORGER	LABORERS	BRICKAYERS	CARDENTERS	\$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	SPACE TYPE
		1	WHBO	1: 400	OPTION	MATERNATIVE	MATE		
		Sans	777DC	i)sano	MANH	Loy!!	DLAZA STUDY: MAN	PARK DLA	GURE 18 20-75
									3



6				1	1		1		1			F	IGURE	9
NJW B TEPT JUN ON! " NOW EN			ANG NO. MEN BASED ON 2000 HES/12	ANNUAL MH BASED ON 9.0 YEARS	torne	HOMEZ IN THE STATE	PARICING	APARAMENTS	OFACE	RETAIL	SPACE TYPE	6	-20-75 BRA	
			DON 2000HES/jp		4884000	5.810002673	182000 1751	1285000 4027	19155006120	37/1000/178	55		PARK DLAZ	
			848	1695	1525,4	2673	1.521	407,72	0 12	1178	CARDENTERS	MATE	A 57	
			1	- (Ī	1				-	BRICKAJERS	MATERNATIVE	OLAZA STUDY: MAN	
		<u>-</u> -	00.00	65.9	5934	111.6	39.1	160,6	239,4	127	LABORERS	OPHON STORY	MAWI	
		1	90,0	0.081	1619,8	201.6	182.2	4280	10000	1050	INOMOVER	1: 100 100 100 100 100 100 100 100 100 100	10/108/	
	 : :		26.)	275	469.8	139,4	10,2	1542	153,2	12,8	PUMBERS	CON CONTRACTOR	W 77to	
			34.0	-679	611,4	108,7		1028	358.2	41.7	STMFIRS /SMU		Sarks	
			265	52.9	475,7	93.0	25.8	60,4	8.751	41.7	EVELTMURKS	inte	W.	
		-	48.5	97.0	8732	1121	72,7	170,9	459,7	57.8	AUDMERS			
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42A STUN	ISOLIOH WAN!	MINISTA	I V	`-
TE PAIN			& L	
12	OPTION!	VAROR	30 07 LAS	:
SOSTINGENS	nononen Senosen	Minsless Sinv	SVAMONY	
352000 1292	16.8 115.1		75.8	
1823500 583,5	227,9669,2	145,93410	7477	
4PARMENTS 1925000 6088 -	243,1 647,7	253.4 1556	9/4 258.7	
PARIONE 11/4/2 000/83.0	57.2 4666	14.9	37.8 106.4	:
5811000 267.3	111.6201.6		93.0 /12/	
- 584550017118 -	2006/0989	5477 651.1	1	
ANNUAL ANH BASED ON 9.0 YEARS 196.9 -	763 271:11	60,9 72,4		
NG NO, MEN BASED ON 2000HES/12 985 -	38,2105,6	1	-	
		1 '		
	:			
1046 MMH MH 129 17 MES				



F	I	G	U	R	E	2	2
6	-	2	0	-	7	5	1

	,		All a stronger danger and have some assess reason for
-			
	CURRENT	ESTIMATED	
	MEMBERSHIP	CURRENT	
		UNEMPLANT	
CARPENTERS	1165	175	
BRICHAMIERS	1700	595	
LABONERS	3500	700	
(Romarkers	1700	510	
PUMBERS	1400	420	
STAFTTERS + SHTMRLIKS	. 2900	580	TOTAL TO
EVEGNUANS	1400	120	
ANDMERS *	9880	2480	NV-022-741-48-0
TOTAL	24645	6180	(25,196 UNEAIDLDYED)
LOW INTENSITY	SCHEMES WOULD	DEMPLOY FRA	ABOUT 1% TO 1.6%
OF THE WORK FOR	ICE (FROM 3,4	2 TO ABOUT 6,2	ABUT 1% TO 1.6%
	1.70.		

7.7 30. 22mg.
10 71
11 Yex Tr. 12 14 3